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Flora Of Vellakovil, Kangeyam Taluk, Tiruppur District, Tamilnadu, India

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Abstract: A comprehensive floristic survey was conducted in the Vellakovil region of Tamil Nadu, India, to document plant diversity and analyze taxonomic composition. A total of 200 angiosperm species belonging to 32 families were recorded following systematic field surveys and taxonomic identification using standard floras. The dominant family was Fabaceae, followed by Malvaceae, Euphorbiaceae, and Asteraceae. Dicots constituted the majority of species (≈87.5%), while monocots accounted for ≈12.5%. Several economically important, medicinal, and invasive species were identified, indicating both ecological richness and anthropogenic influence. The presence of invasive taxa such as *Parthenium hysterophorus* and *Lantana camara* highlights the need for biodiversity management strategies. The study provides baseline floristic data essential for conservation planning and ecological monitoring of the region**.**

Index Terms **-** Floristic diversity, Angiosperms, Taxonomic analysis, Invasive species, Tamil Nadu, Biodiversity assessment

I. INTRODUCTION

Vellakovil is a municipal town located in Kangeyam taluk of Tirupur District, Tamil Nadu, India. It lies on National Highway 67. The town covers an area of about 64.75 square kilometers. The town is a block headquarters and comprises 12 revenue villages as well as one town panchayat and one municipality. Vellakovil is known for its traditional agriculture alongside industrial activities. The climate features an average annual rainfall of around 529 mm, with temperatures ranging from approximately 28ºC to 32ºC. Vellakovil represents a diverse assemblage of plant species adapted to its unique agro-climatic conditions. This study aims to document and classify the terrestrial plants found in this region, contributing to the understanding of its biodiversity and ecological significance. The flora includes a mix of native trees, shrubs, herbs, and climbers, with several species potentially holding medicinal or economic value. Detailed botanical surveys can provide baseline data vital for conservation and sustainable utilization of these plant resources.

II. MATERIALS AND METHODS

The study was conducted through systematic field surveys across various habitats in the Vellakovil region from May 2024 to October 2025. Plants were collected during different phenological stages to ensure accurate identification. Identification was performed using regional floras and taxonomic keys, supported by herbarium specimen comparisons. Data on plant habit (tree, shrub, herb, climber), abundance, and phenology were recorded. Voucher specimens were prepared and deposited in recognized herbaria for future reference. Photographic documentation and GPS mapping were also incorporated for spatial analysis of species distribution. Through well planned field visits, 175 Dicotyledons and 25 Monocotyledons belonging to Angiosperms were collected. Special attention was provided to document the data relating to habit, habitat, association with other plants, frequency, ecological features, height of the plants, colour of the flower, local name etc., After the collections, the plants were treated with formaldehyde and 0.1% HgCl2 in order to kill the germs present in the plants.

Then they were dried and pressed with the help of wooden press. The dried specimens were mounted on herbarium sheets. The herbarium techniques were followed as mentioned by Jain and Rao and Matthew .

III. RESULTS AND DISCUSSION

Th In the present study, totally 200 plants belonging to Angiosperms have been surveyed. Their binomials of the 200 plants along with their families are listed in the table.3.1. The floristic survey of the Vellakovil region recorded a notable presence of both invasive and medicinally important plant species. There are 10 plants documented which comes under the invasive list and their native is listed in the table.3.2 respectively. 57 plants used as medicinal plants by the local peoples. he coexistence of invasive species alongside medicinally valuable native flora highlights both ecological challenges and conservation opportunities within the Vellakovil region.

Table 3.1. Botanical name of the documented plants and their family

S.No	Botanical Name (with Authority)	Family (APG IV)
1	*Abrus precatorius* L.	Fabaceae
2	*Abutilon indicum* (L.) Sweet	Malvaceae
3	*Acacia nilotica* (L.)	Fabaceae
4	*Acalypha indica* L.	Euphorbiaceae
5	*Achyranthes aspera* L.	Amaranthaceae
6	*Adenium coetaneum* Stapf	Apocynaceae
7	*Aerva lanata* (L.) Juss. ex Schult.	Amaranthaceae
8	*Ailanthus excelsa* Roxb.	Simaroubaceae
9	*Allium cepa* L.	Amaryllidaceae
10	*Aloe vera* (L.) Burm.f.	Asphodelaceae
11	*Alstonia scholaris* (L.)R.Br.	Apocynaceae
12	*Alternanthera achyrantha* R.Br. ex Sweet	Amaranthaceae
13	*Alternanthera caracasana* Kunth	Amaranthaceae
14	*Alysicarpus rugosus* (Willd.) DC.	Fabaceae
15	*Amaranthus tricolor* L.	Amaranthaceae
16	*Amaranthus viridis* L.	Amaranthaceae
17	*Andrographis echioides* (L.) Nees	Acanthaceae
18	*Andrographis paniculata* (Burm.f.) Nees	Acanthaceae
19	*Anisomelous malabarica* (Gaertn.) R.Br. ex Wall.	Lamiaceae
20	*Annona reticulata* L.	Annonaceae
21	*Annona squamosa* L.	Annonaceae
22	*Arachis hypogaea* L.	Fabaceae
23	*Aristida purpurea* Nutt.	Poaceae
24	*Artabotrys hexapetalus* (L.f.) Bhandari	Annonaceae
25	*Azadirachta indica* A. Juss.	Meliaceae
26	*Barleria prionitis* L.	Acanthaceae
27	*Bauhinia tomentosa* L.	Fabaceae
28	*Biophytum sensitivum* (L.) DC.	Oxalidaceae
29	*Boerhaavia verticillata* L.	Nyctaginaceae
30	*Borassus flabellifer* L.	Arecaceae
31	*Bougainvillea glabra* Choisy	Nyctaginaceae
32	*Cajanus cajan* (L.) Millsp.	Fabaceae
33	*Calophyllum inophyllum* L.	Calophyllaceae
34	*Calotropis gigantea* (L.) Dryand.	Apocynaceae
35	*Calotropis gigantea* (L.) W.T. Aiton	Apocynaceae
36	*Calotropis procera* (Aiton) W.T. Aiton	Apocynaceae
37	*Canna indica* L.	Cannaceae
38	*Capsicum frutescens* L.	Solanaceae
39	*Cardiospermum halicac*abum L.	Sapindaceae
40	*Cassia auriculata* L.	Fabaceae

41	*Cassia auriculata* L.	Fabaceae
42	*Cassia fistula* L.	Fabaceae
43	*Cassia occidentalis* (L.)	Fabaceae
44	*Cassia siamea* Lam.	Fabaceae
45	*Catharanthus roseus* (L.) G.Don	Apocynaceae
46	*Celosia argentea* L.	Amaranthaceae
47	*Celosia spicata* L.	Amaranthaceae
48	*Centella asiatica* (L.) Urb.	Apiaceae
49	*Chloris barbata* Sw.	Poaceae
50	*Chlorsis barbata* (L.)	Poaceae
51	*Chrysanthemum morifolium* Ramat.	Asteraceae
52	*Cissus quadrangularis* L.	Vitaceae
53	*Citrus aurantifolia* (Christm.) Swingle	Rutaceae
54	*Citrus limon* (L.) Burm. f.	Rutaceae
55	*Citrus medica* L.	Rutaceae
56	*Cleome felina* L.f	Cleomaceae
57	*Cleome gynandra* L.	Cleomaceae
58	*Cleome viscosa* L.	Cleomaceae
59	*Clitoria ternatea* L.	Fabaceae
60	*Coccinia indica* Wight & Arn.	Cucurbitaceae
61	*Cocos nucifera* L.	Arecaceae
62	*Coleus aromaticus* Benth.	Lamiaceae
63	*Commelina attenuata* Koenig	Commelinaceae
64	*Commelina benghalensis* L.	Commelinaceae
65	*Corchorous aestuans* L.	Malvaceae
66	*Corchorous tridens* L.	Malvaceae
67	*Cordia sebestena* L.	Boraginaceae
68	*Crotalaria retusa* L.	Fabaceae
69	*Croton bonplandianus* Baill.	Euphorbiaceae
70	*Cucumis maderaspatanus* L.	Cucurbitaceae
71	*Cyamopsis tetragonoloba* (L.) Taub.	Fabaceae
72	*Cynodon dactylon* (L.) Pers.	Poaceae
73	*Cyperus difformis* L.	Cyperaceae
74	*Cyperus odoratus* L	Cyperaceae
75	*Dactyloctenium aegyptium* (L.) Willd.	Poaceae
76	*Datura metel* L.	Solanaceae
77	*Delonix regia* (Boj.ex Hook.)Raf.	Fabaceae
78	*Desmodium dichotomum* (Willd.) DC.	Fabaceae
79	*Digera muricata* (L.) Mart.	Amaranthaceae
80	*Dolichos trilobus* L.	Fabaceae
81	*Dracaena trifasciata* Linn.	Asparagaceae
82	*Echinochloa colona* (L.) Link	Poaceae
83	*Eclipta prostrata* (L.) L.	Asteraceae
84	*Epipremnum aureum* (Linden & André) G.S.Bunting	Araceae
85	*Eragrostis tenella* (L.)	Poaceae
86	*Ervatamia divaricata* (L.) Burkill	Apocynaceae
87	*Eucalyptus globulus* Labill	Myrtaceae
88	*Euphorbia cyathophora* Murray	Euphorbiaceae
89	*Euphorbia heterophylla* L.	Euphorbiaceae
90	*Euphorbia hirta* L.	Euphorbiaceae
91	*Euphorbia milii* Des Moul.	Euphorbiaceae
92	*Evolvulus alsinoides* (L.) L.	Convolvulaceae
93	*Ficus religiosa* L.	Moraceae
94	*Gloriosa superba* L.	Colchicaceae

5	*Gmelina arborea*Roxb.	Lamiaceae
96	*Gomphrena celsiodes* (Mart.)	Amaranthaceae
97	*Gomphrena globosa* L.	Amaranthaceae
98	*Gossypium barba*dense L.	Malvaceae
99	*Heliotropium indicum* L.	Boraginaceae
100	*Hibiscus rosa-sinensis* L.	Malvaceae
101	*Hibiscus sabdariffa* L.	Malvaceae
102	*Hybanthus enneaspermus* (L.) F. Muell.	Violaceae
103	*Indigofera linifolia* L.	Fabaceae
104	*Indigofera linnaei* Ali	Fabaceae
105	*Ipomea pestigridis* L	Convolvulaceae
106	*Ipomoea cordata* L.B.Sm. & B.G.Schub.	Convolvulaceae
107	*Ipomoea quamoclit* L.	Convolvulaceae
108	*Ixora coccinea* L.	Rubiaceae
109	*Jasminum angustifolium* (L.) Willd.	Oleaceae
110	*Jasminum sambac* (L.) Aiton	Oleaceae
111	*Jatropha glandulifera* Roxb.	Euphorbiaceae
112	*Justicia adhatoda* L.	Acanthaceae
113	*Justicia procumbens* L.	Acanthaceae
114	*Lablab purpureus* (L.) Sweet	Fabaceae
115	*Lantana camara* L	Verbenaceae
116	*Lawsonia inermis* L.	Lythraceae
117	*Lepidagathis spinosa* Raf.	Acanthaceae
118	*Leucas aspera* (Willd.) Link	Lamiaceae
119	*Ludwigia perennis* L.	Onagraceae
120	*Luffa acutangula* (L.) Roxb.	Cucurbitaceae
121	*Lycopersicon esculentum* Mill.	Solanaceae
122	*Mangifera indica* L.	Anacardiaceae
123	*Manilkara zapota* (L.) P.Royen	Sapotaceae
124	*Martynia annua* L.	Martyniaceae
125	*Melia azedarach* L.	Meliaceae
126	*Mimosa pudica* L.	Fabaceae
12	*Mimusops elengi* L.	Sapotaceae
128	*Mollugo nudicaulis* Lam.	Molluginaceae
129	*Momordica charantia* L.	Cucurbitaceae
130	*Moringa oleifera* Lam.	Moringaceae
131	*Morus indica* L.	Moraceae
132	*Mukia maderaspatana* (L.)M. Roem	Cucurbitaceae
133	*Murraya koenigii* (L.) Spreng.	Rutaceae
134	*Musa paradisiaca* L	Musaceae
135	*Nerium oleander* L.	Apocynaceae
136	*Nyctanthes arbor-tristis* L.	Oleaceae
137	*Ocimum basilicum* L.	Lamiaceae
138	*Ocimum tenuiflorum* L.	Lamiaceae
139	*Oryza sativa* L.	Poaceae
140	*Parthenium hysterophorus* L.	Asteraceae
141	*Passiflora foetida* L.	Passifloraceae
142	*Pavonia odorata* Cav	Malvaceae
143	*Pavonia zeylanica* (Cav.) Cav.	Malvaceae
144	*Pedalium murex* L.	Pedaliaceae
145	*Peltophorum ptereocarpum* (DC.)K.Heyne	Fabaceae
146	*Pergularia daemia* (Forsk.) Chiov.	Apocynaceae
147	*Peristrophe bicalyculata* (Retz.) Nees	Acanthaceae
148	*Perotis indica* (L.) Kuntze	Poaceae

149	*Phaseolus trilobus* Aiton	Fabaceae
150	*Phyllanthus acidus* (L.) Skeels	Phyllanthaceae
151	*Phyllanthus maderaspatensis* L.	Phyllanthaceae
152	*Physalis minima* L.	Solanaceae
153	*Pithecellobium dulce* (Roxb.) Benth.	Fabaceae
154	*Plectranthus amboinicus* (Lour.) Spreng.	Lamiaceae
155	*Plumbago zeylanica* L	Plumbaginaceae
156	*Plumeria alba* L.	Apocynaceae
157	*Pongamia pinnata* (L.) Pierre	Fabaceae
158	*Procopsis julifera* (Sw.) DC.	Fabceae
159	*Psidium guajava* L.	Myrtaceae
160	*Punica granatum* L	Lythraceae
161	*Pupalia lappacea* (L.) Juss.	Amaranthaceae
162	*Rhynchosia minima* (L.) DC.	Fabaceae
163	*Ricinus communis* L.	Euphorbiaceae
164	*Rosa indica* L.	Rosaceae
165	*Ruellia patula* Jacq.	Acanthaceae
166	*Ruellia tuberosa* L.	Acanthaceae
167	*Scoparia dulcis* L.	Plantaginaceae
168	*Sesbania grandiflora (*L.) Desv.	Fabaceae
169	*Sesbania speciosa* Taub. ex Engl.	Fabaceae
170	*Sida acuta* Burm.f.	Malvaceae
171	*Solanum melongena* L.	Solanaceae
172	*Solanum surattense* Burm.f.	Solanaceae
173	*Solanum torvum* Sw.	Solanaceae
174	*Solanum trilobatum* L.	Solanaceae
175	*Sorghum halepense* (L.) Pers.	Poaceae
176	*Stemodia viscosa* Roxb.	Plantaginaceae
177	*Syzygium cumini* (L.)Skeels.	Myrtaceae
178	*Tabernaemontana divaricata* (L.) R.Br. ex Roem. & Schult.	Apocynaceae
179	*Tagetes erecta* L.	Asteraceae
180	*Tamarindus indica* L.	Fabaceae
181	*Tecoma stans* (L.) Juss. Ex kunth	Bignoniaceae
182	*Tectona grandis* L. F	Lamiaceae
183	*Tephrosia canescens* DC.	Fabaceae
184	*Tephrosia purpurea* (L.) Pers.	Fabaceae
185	*Thespesia populnea* (L.) Sol. ex Corrêa	Malvaceae
186	*Thevetia peruviana* (Pers.) K.Schum.	Apocynaceae
187	*Tradescantia spathacea* Sw.	Commelinaceae
188	*Trianthema decandra* L. MANT.	Aizoaceae
189	*Tribulus terrestris* L.	Zygophyllaceae
190	*Trichodesma indicum* (L.)R.Br	Boraginaceae
191	*Trichosanthes tricuspidata* Lour.	Cucurbitaceae
192	*Tridax procumbens* L.	Asteraceae
193	*Triumfetta rhomboidea* L.	Malvaceae
194	*Triumfetta rotundifolia* Lam.	Malvaceae
195	*Vernonia cinerea* (L.)	Asteraceae
196	*Veronica javanica* Blume	Plantaginaceae
197	*Vicoa indica* (L.) DC.	Asteraceae
198	*Vitex negundo* L.	Lamiaceae
199	*Zea mays* L.	Poaceae
200	*Zizyphus nummularia* (Burm.f.) Wight & Arn.	Rhamnaceae

Table 3.2. Invasive Plants recorded in the study area:

S.No	Botanical Name	Family	Nativity	Invasive Status in India	Ecological / Economic Impact
1	*Parthenium hysterophorus*	Asteraceae	Tropical America	Highly invasive	Causes dermatitis, asthma; suppresses crops & native flora
2	*Lantana camara*	Verbenaceae	Central & South America	Highly invasive	Forms dense thickets; reduces forest regeneration
3	*Prosopis juliflora*	Fabaceae	Central America	Highly invasive	Invades dry lands; alters soil chemistry; groundwater depletion
4	*Croton bonplandianus*	Euphorbiaceae	South America	Invasive weed	Rapid colonizer of wastelands & agricultural fields
5	*Euphorbia heterophylla*	Euphorbiaceae	Tropical America	Invasive weed	Competes with crops; reduces agricultural productivity
6	*Passiflora foetida*	Passifloraceae	Tropical America	Invasive climber	Smothers shrubs and native vegetation
7	*Tridax procumbens*	Asteraceae	Central America	Naturalized invasive	Aggressive roadside and pasture weed
8.	*Euphorbia cyathophora*	Euphorbiaceae	Tropical America	Naturalized invasive	Agricultural weed in disturbed habitats
9.	*Martynia annua*	Martyniaceae	Mexico	Invasive weed	Competes with crops; spreads rapidly in dry lands
10.	*Eichhornia crassipes*	Pontederiaceae	South America	Highly invasive	Blocks water bodies; reduces oxygen; affects fisheries

Figure 3.1. Invasive Plants surveyed in the study area

a. Croton bonplandianus b. Parthenium hysterophorus c. Passiflora foetida
d. Tridax procumbens e. Euphorbia cyathophora f. Lantana camara

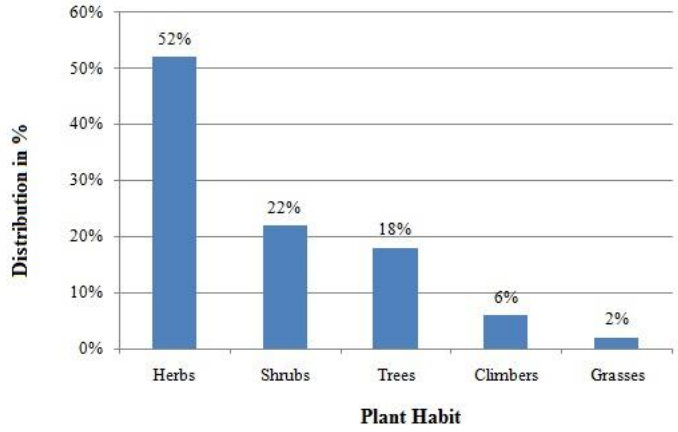

Figure 3.2. Habit wise distribution of species

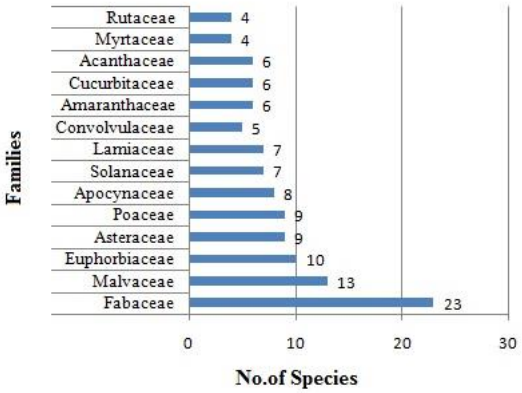

Figure 3.3. Family wise distribution of species

The dominance of Fabaceae and Malvaceae aligns with typical tropical dry land floras of South India (Fig.3.3). High herbaceous representation suggests anthropogenic influence and open habitat conditions. The occurrence of invasive species such as *Parthenium hysterophorus* and *Lantana camara* indicates ecological disturbance and potential threats to native biodiversity. Their management is crucial to prevent competitive exclusion of native taxa. The presence of numerous medicinal and economically important plants reflects the ecological and socio-economic value of the region's flora. Compared to similar floristic studies in Tamil Nadu, the Vellakovil region shows moderate species richness with significant representation of cultivated and naturalized species.

The study area is predominantly dominated by herbaceous species (52%)**,** indicating open habitat conditions and significant anthropogenic influence. Shrubs (22%) and trees (18%) show moderate woody vegetation presence. Climbers (6%) represent secondary vegetation components, while grasses (2%) contribute minimally to overall diversity. The dominance of herbs is typical of tropical dry regions of Tamil Nadu. (Fig.3.2)

IV. CONCLUSION

The present study is an attempt to flora of Vellakovil, Kangeyam taluk, Tiruppur District of Tamil Nadu, India. Totally 200 plants were surveyed. Among which 175 plants belong to Dicotyledons and 25 plants belong to Monocotyledons. These 200 plants belong to 32 families. The Family Fabaceae has representatives with a maximum 23 members in the present study area. There are 10 families have single representatives with one species. In the present study there are 10 plants are under the invasive category and 40 plants are used for medicinal purposes by the local peoples. The dominance of Fabaceae and herbaceous taxa highlights the tropical dry habitat characteristics. The presence of invasive species warrants ecological monitoring and management strategies. This study provides baseline data for future biodiversity assessments and conservation planning.

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